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EVALUATIONS OF SOVIET
SURFACE-TO-SURFACE
MISSILE DEPLOYMENT
19TH REVISION

A Report of the Deployment Working Group
of the
Guided Missile and Astronautics Intelligence Committee

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The Guided Missile and Astronautics Intelligence Committee (GMAIC) wishes to express its appreciation to the National Photographic Interpretation Center for its assistance in the editing, illustration, and publication of this report.

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PREFACE

This report, published bimonthly by the GMAIC Deployment Working Group (DWG), provides a comprehensive ready-reference listing of all ICBM, IRBM, and MRBM deployment locations, types of site configurations, photographic references, estimated construction and operational status, and other evaluations by the DWG. These data constitute the majority view of the DWG membership, and may not correspond precisely to individual assessments by each member. Additional data may be added to future revisions.

Dissemination of the report was previously limited to holders of the DWG report, Soviet Surface-to-Surface Missile Deployment. Because the information contained herein is both supplemental and self-sustaining, distribution will no longer be limited to holders of the above report.

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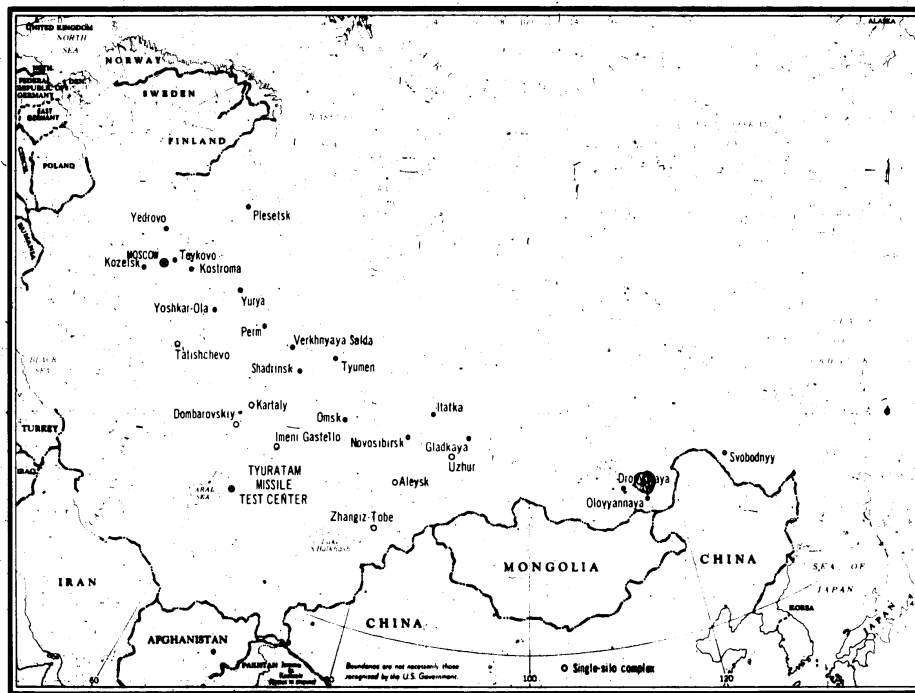


FIGURE 1. DEPLOYMENT OF SOVIET ICBM COMPLEXES.

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INTRODUCTION

This report is the 19th Revision of Evaluations of Soviet Surface-to-Surface Missile Deployment prepared by the Deployment Working Group (DWG) of the Guided Missile and Astronautics Intelligence Committee (GMAIC). The information contained in this and previous revisions is self-sustaining and supplements the basic DWG report Soviet Surface-to-Surface Missile Deployment which provides detailed information on individual launch facilities of the Soviet Strategic Rocket Forces. The basic report, dated 1 January 1962 (Control Number TH 0747-62KH), has been revised and updated on a periodic basis. Further updating is accomplished in reports prepared and published for GMAIC by the National Photographic Interpretation Center.

and continuing analysis of previous missions and other sources have provided additional information on the Soviet strategic missile deployment program. The new data are reflected in Table 1 and in the estimated operational status shown in Tables 2 through 6. Technical characteristics of Soviet ICBM, IRBM, and MRBM systems currently operational or under development are given in Table 10. Cutoff date for information contained in this report is 25 June 1965.

SOVIET ICBM DEPLOYMENT

Significant developments in the Soviet ICBM deployment program and related activities since publication of our 18th Revision include 1) identification of additional single-silo sites under construction at deployed complexes, 2) completion of the first single-silo site and

identification of a new rail-served soft site at the Tyuratam Missile Test Center, 3) additional flight testing of a probable new ICBM, and 4) display of 3 new strategic missiles in the 9 May 1965 Moscow Parade.

CURRENT DEPLOYMENT

No new ICBM complexes have been identified since our latest revision; the total number identified to date remains at 25. These complexes now contain a total of 369 confirmed and probable launchers in various stages of construction, an increase of 28 over the number reported in our 18th Revision. Of these 369 launchers, 150 are soft and 219 are hard. Included in the hard launchers are 141 single silos. In addition, we are carrying 11 additional single-silo sites in the possible category. See Figure 1 for locations of deployed ICBM complexes.

Of the 369 confirmed and probable launchers, 224 are estimated to be operational, including 78 in a hard configuration. In addition, 30 of the 49 launchers at Tyuratam are now completed, although not normally considered as part of the operational ICBM force. The ICBM sites have been designated by type, as shown and explained in Figure 2.

Evaluation of all evidence received since our latest revision has resulted in the following additions at the complexes indicated, and at Tyuratam:

DOMBAROVSKIY, Launch Site F(7), Type IIIC, under construction
IMENI GASTELLO, Launch Sites H(8), I(9), and J(10), Type IIIC, under construction
KARTALY, Probable Launch Site I(10), and Possible Launch Site J, Type IIIC, under construction
OLOVYANNAYA, Probable Launch Groups F(24) and G(25-27), Type IIID, under construction

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PERM, Launch Group H, Type IIID, under construction

TATISHCHEVO, Launch Group D(28-29), Type IIID, under construction

UZHUR, Launch Site L(12), Probable Launch Site M(13), and Launch Site N(14), Type IIIC, under construction

TYURATAM, Launch Site A4, Type I, complete; Launch Sites J1 and J2, Type I, under construction.

SINGLE-SILO DEPLOYMENT

General

Confirmed single-silo deployment continues to be limited to the 7 newer and 4 older complexes; suspect activity at a fifth older complex, Kozelsk, has not been covered by usable photography since our latest revision. The number of sites under construction at these complexes continues to grow and it is apparent that deployment of both Type IIIC and IIID sites is continuing.

Type IIIC Sites

GENERAL

Identified Type IIIC single-silo deployment remains limited to the Aleysk, Dombrovskiy, Imeni Gastello, Kartaly, Uzhur and Zhangiz-Tobe Complexes, where a total of 51 confirmed and probable, and 1 possible, sites have been observed under construction. Thirty-eight of the 51 confirmed and probable sites were begun in 1964; construction of the remaining 13 (and 1 possible) sites commenced in 1965.

Total sites at each of the 6 Type IIIC complexes range from a low of 6 at Aleysk, Dombrovskiy, and Zhangiz-Tobe, to a high of 14 at Uzhur. Imeni Gastello has 10 sites, and Kartaly 9 (plus 1 possible). Analysis of construction activity at each of the complexes indicates that planned deployment -- at least in terms of the pace of site activation -- is not the

same for all 6 complexes. The activation of new sites has been progressing at a fairly even pace at those complexes containing more than 6 sites. At Aleysk, however, no new site construction has been observed since July 1964; at Zhangiz-Tobe, none has been identified since November 1964. The sixth site at Dombrovskiy was not begun until February 1965, about 6 months after initiation of construction activity at the fifth site. The size of the complex support facilities at Type IIIC complexes indicates that all of them will contain more than 6 sites. No reliable estimate can be made of the maximum number of sites to be deployed at any one of the complexes. It does appear, however, that not all of the complexes are programmed for the same number of sites.

Early assessment of Type IIIC site deployment indicated a pattern of site layout in groups of 3, with 1 launch control center for each 3 sites (See 17th Revision). To date, this assessment has not been borne out -- we have identified a control facility at only 1 of the first 6 sites at each complex, but have not yet observed any firm evidence of a second. Suspect areas for a second control facility at Launch Site F(6) at Aleysk and Launch Site C(3) at Imeni Gastello fail to show any construction progress on recent coverage. Because of the lack of evidence of a second control facility under construction at any of the 6 complexes, we are currently re-examining our method of estimating site completions based on the "group of 3" concept. We have also noted that none of the Type IIIC sites in the field has advanced to a late stage of construction,* although some have been under

*To clarify the terms used in referring to construction stages at single-silo sites, identifiable steps in the construction process have been categorized as follows: early stage: clearing and grading, open-cut silo excavation, silo coring; midstage: silo under construction, silo backfilling; late stage: silo door installed, final backfill and grading; complete: final configuration apparent; operational: equipment installed and checked out (estimated).

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construction for about 18 months. Therefore, we are also reexamining our previous estimate that the minimum completion time (for a group of 3 sites) will be 21 to 24 months. Succeeding paragraphs summarize developments since our latest revision at the individual complexes where Type IIC sites are currently under construction.

ALEYSK COMPLEX

All 6 single-silo launch sites remain in a midstage of construction. [REDACTED] revealed further details of construction activity at all of the sites. At Launch Site A(1), 2 construction ramps extend to the square silo structure which has been built up from the bottom of the excavation. A track-like configuration, aligned with the silo, is on the rectangular mound adjacent to the northwest side of the silo excavation (Figure 3). At Launch Site B(2), the silo structure is apparent at the bottom of the excavation and a square structure entirely covers the square mound adjacent to the southeast side of the excavation (Figure 4). A track-like configuration, identical to that at Launch Site A(1), is visible on the rectangular mound adjacent to the northwest side of the silo excavation at Launch Site C(3) on [REDACTED]. A control/guidance facility also can now be confirmed at this site (Figure 5). Construction of an L-shaped electronic facility is underway, and work has progressed at the control building located at the apex of the "L". Two very large building foundations are newly identified immediately outside the security fence southwest of the launch site. The silo structure is apparent at the bottom of the excavation at Launch Site D(4), and a circular probable environmental shelter covers the silo aperture. At Launch Site E(5), only part of the silo structure is visible at the bottom of the excavation. Adjacent to the square mound which

contains a ring-like object are about 50 shipping crates (Figure 6). The area suspect for construction of a control/guidance facility at Launch Site F(6) was covered by [REDACTED] (see 18th Revision). There is no indication that construction of an L-shaped interferometer and control center is underway at this launch site.

DOMBAROVSKIY COMPLEX

[REDACTED] coverage of Dombarovskiy revealed a sixth single silo, designated Launch Site F(7), in an early stage of construction approximately 13 nm northwest of the complex support facility (Figure 7). The new site can be negated on [REDACTED] and is first visible on [REDACTED]. The site support facility, approximately 1,000 feet northeast of the launch site, contains 2 large and 14 small buildings, all under construction. Launch Site E(6), the only other site at this complex observed since our latest revision, has progressed to a midstage of construction. The silo is under construction in the coring, and extends upward nearly to the bottom of the square excavation. Schematic layout of the complex is shown in Figure 8.

IMENI CASTELLO COMPLEX

[REDACTED] provided significant details of construction activity at Imeni Castello, including the identification of 3 new launch sites, designated H(8), I(9) and J(10), all in an early stage of construction. Launch Site H(8) can be negated on [REDACTED] and is first visible on [REDACTED]. The site consists of a silo coring in the approximate center of a typical U-shaped excavation. Launch Site I(9) can be negated on [REDACTED] in [REDACTED] and evidence of initial construction activity can be identified on [REDACTED] in [REDACTED]. The site still appeared to be in

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an early construction stage when viewed on indicating relatively slow construction progress. Launch Site J(10), first seen on can be negated on

Launch Site A(1) remains in a midstage of construction, with the silo structure near ground level (Figure 9). A newly identified cylindrical object, approximately 110 feet long and 10 feet in diameter, is situated along the long axis of the paved rectangle adjacent to the silo excavation. This object, which appears to be resting on a cradle or platform, is in the same relative position as the track-like configuration at Launch Sites A(1) and C(3) at Aleysk. No such configuration has been identified previously at this site; if present, it is hidden by the cylindrical object. A newly identified shallow rectangular excavation is located approximately 350 feet east of the silo excavation. It appears to be connected by trenching or conduit to a rectangular building approximately 150 feet east of the silo structure. A second newly identified excavation, square and shallow, is visible approximately 500 feet northwest of the silo excavation. Within the silo excavation, a small T-shaped structure is evident immediately adjacent to the east side of the silo structure.

Launch Site B(2) remains in a midstage of construction (Figure 10). Unidentified activity is apparent on the graded rectangular earth mound northwest of the silo excavation. There are 3 long, linear objects on the mound. A fourth object of the same general configuration, located immediately north of the silo excavation, is apparently being towed by a small tractor-like vehicle. These objects appear to be half the length of those observed at Launch Site A(1).

Launch Site C(3) also remains in a midstage of construction (Figure 11). A prominent newly identified trench extends from the east side of the silo excavation and then angles in a southerly

direction to a point southwest of the excavation. Activity at an area suspect for construction of a control facility at this site (see 18th Revision) has failed to develop on more recent coverage.

Launch Site D(4) remains in a midstage of construction, with the silo structure apparently near ground level (Figure 12). As at Launch Site A(1), a cylindrical object approximately 110 by 10 feet rests on a cradle or platform along the long axis of the rectangular earth mound adjacent to the silo excavation. Construction of a guidance/control facility at this site is now confirmed, with both an L-shaped electronic facility and associated control bunker readily visible.

Launch Sites E(5) and F(6) are both in midstage, with the former containing a cylindrical object identical to those at Launch Sites A(1) and D(4). Launch Site G(7), consisting of a typical U-shaped excavation and silo coring, remains in an early construction status. The security fence at this site is unusually large, with an outline similar to that of Launch Site D(4), suggesting eventual accommodation of a control/guidance facility.

Intersite cabling is also evident at the Imeni Gastello Complex, with newly identified cable scars extending from Launch Site D(4) to E(2). Similar scars connecting Launch Site D(4) to E(5) and F(6), have been identified previously. In our 18th Revision we reported apparent plus configurations defined by areas of ground scarring at Launch Sites A(1) through G(7). These areas are no longer visible on more recent coverage, and we no longer suspect that they are associated with guidance or, as such, represent a unique difference between the sites at Imeni Gastello and those at the other 5 complexes containing Type IIIC sites. Schematic layout of the launch sites at Imeni Gastello is shown in Figure 13.

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KARTALY COMPLEX

The Kartaly Complex was covered by Missions [redacted]

[redacted] The earlier mission provided the more detailed information, including identification of 1 probable new site and 1 possible new site under construction. The sites are designated Launch Sites I(10) and J, respectively. Both sites can be negated on [redacted] in [redacted] and are first visible on [redacted] in [redacted]

The silo structure at Launch Site A(1) has now reached ground level (Figure 14). A second excavation southeast of the silo excavation contains a control bunker under construction at the apex of a partially completed site and also contains an L-shaped electronics facility. Launch Site B(2) remains at midstage, with the silo structure at ground level and 2 ramps extending to it. A T-shaped structure also is apparent in the silo excavation. A faintly discernible object--possibly similar to the cylindrical objects identified at the Imeni Gastello Complex--is present on the rectangular earth mound adjacent to the silo excavation.

No significant changes are visible at Launch Sites D(4), E(5), F(6), and G(7). All are in midstage except Launch Site G(7), which remains in an early construction stage. At Launch Site H(8), a large elevated net has been placed over the silo excavation (Figure 15). The site is in a midstage of construction, with the silo coring and equipment visible through the netting. This probable camouflage attempt is the first we have identified in the single-silo deployment program.

A schematic layout of the Kartaly launch sites is shown in Figure 16.

UZHUR COMPLEX

The Uzhur Complex was covered, at least partly, by 4 of the 5 photographic missions

since our 18th Revision. Highlights of these coverages were confirmation of Launch Sites H(8) and K(1), both in a mid-construction stage, and the identification of Launch Sites L(12), M(13)*, and N(14), all in an early stage of construction. The latter 3 sites can be negated on various missions in March 1965 and are first visible on various missions in May 1965. Launch Sites A through F(1-6) remain in a midstage of construction, and Launch Sites G(7), I(9), and J(10) are still in an early stage.

Launch Site A(1) shows no significant change since [redacted]. The control building and the segments of the electronic facility at Launch Area B(2) are not yet backfilled. A linear, probably cylindrical, object is located on the surfaced rectangular earth mound adjacent to the silo excavations at Launch Sites B(2), E(5), and F(6). Construction continues at the complex support facility (Figure 17), with the most significant activity in the west and southwest portions. There are at least 4 major buildings under construction, and footings for several others are evident. Construction also continues at the rail-to-road transfer point (Figure 18), where there are now 6 major buildings, several smaller buildings, and a parallel road system under construction. A considerable amount of construction material is stacked along the rail spur within the transfer point. A schematic layout of the Uzhur Complex is shown in Figure 19.

ZHANGIZ-TOBE COMPLEX

[redacted] provided good-quality, stereo photography of the 6 identified launch sites at Zhangiz-Tobe. Significant developments include confirmation of a control/guidance facility (Figure 20) under construction at Launch Site A(1); identification of a linear object on a cradle or platform along

*Launch Site M(13) currently is carried in the probable category.

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the long axis of the rectangular earth mound at Launch Sites A(1) and B(2); and evidence of silo construction which permits confirmation of Launch Site F(6). All 6 sites are in a midstage of construction.

Type IIID Sites

GENERAL

Identified Type IIID single-silo deployment remains limited to the Tatishchevo Complex and 4 of the 18 older ICBM complexes (Drovyannaya, Gladkaya, Olovyannaya, and Perm). We have identified a total of 90 confirmed and probable, and 10 possible Type IIID launch sites which we believe are components of 14 launch groups. We continue to believe that each launch group will ultimately contain 10 silos; in many instances, however, it is impossible to determine the specific sites associated with individual launch groups. Of the 14 identified launch groups, some 12 were begun in 1964 and the remaining 2 in 1965. As far as individual silos are concerned (including possibles), about 85 were started in 1964 and 15 in 1965. Two of the 14 launch groups have reached a late stage of construction, 5 are in midstage, and the remaining 7 are in an early stage. We are re-examining our previous estimate that a minimum of 18 to 21 months will be required for each launch group to reach an operational status.

Succeeding paragraphs summarize developments since our latest revision at complexes where deployment of Type IIID launch groups has been identified.

DROVYANNAYA COMPLEX

Coverage of the Type IIID launch sites at Drovyannaya on [redacted] has confirmed construction of at least 2 launch groups, designated G and H. Launch Group G contains 10 confirmed sites, G1(7) through

G10(18), all of which were begun during the period June-August 1964. Site G2(8) will contain the control and guidance facility for the launch group. Sites G1(7) and G6(12) are in a late stage of construction. The remainder are at midstage.

Launch Group H currently contains 9 confirmed sites, designated H1(16) through H9(26). Construction of these 9 sites was begun during the latter part of 1964 and the early part of 1965. The launch group is in a midstage of construction.

GLADKAYA COMPLEX

[redacted] provided only poor coverage of the Type IIID launch sites at Gladkaya; however, discovery of Launch Site F10(20) appears to round out Launch Group F(7-20), with 7 confirmed and probable and 3 possible sites. In addition, identification of probable Launch Site G4(21), added to the 3 possible Launch Sites G1-G3(16-18) formerly carried in Launch Group G, permit this group to be elevated from the possible to the probable category. Details of construction activity at both groups could not be discerned. Launch Group F(7-20) has reached a midstage of construction, while probable Launch Group G(16-21) is still in an early stage.

OLOVYANNAYA COMPLEX

Highlight of coverage of the Olovyannaya Complex on 4 of the 5 photographic missions received since our latest revision is the identification of 2 new Type IIID probable launch groups, designated Launch Groups F and G, on [redacted]. Although a total of only 4 sites has been identified for both launch groups, 2 of the sites probably have support/control facilities associated with them, and the spacing of the sites also is indicative of

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2 launch groups. Launch Site F1(24), the only site identified in probable Launch Group F, is located immediately west of the rail-to-road transfer point and consists of a generally triangular-shaped security fence enclosing a silo in a midstage of construction (Figure 21). A group of 6 large and 4 small buildings is under construction within the fence. The site can be negated on [redacted] and was first seen later the same month on [redacted].

Launch Site G1(25) is located approximately 5 nm southwest of the complex support facility and consists of a silo in a midstage of construction with a group of approximately 5 buildings under construction nearby (Figure 22). Two other new sites, Launch Sites G2(26) and G3(27), appear to be associated with Launch Site G1, since they are both located within 3 nm of it. Both are in a midstage of construction. As is the case with Launch Site F1(24), all 3 sites in probable Launch Group G were negated and first seen on successive missions in March 1965.

Launch Group D(4-13) is now in a late stage of construction, with backfilling completed at 9 of the 10 sites. All 10 sites at Launch Group E(14-23) remain in a midstage of construction. A probable control building is under construction at Launch Site E1(17).

PERM COMPLEX

Type IIID Launch Sites at Perm received poor-to-fair coverage on [redacted]. A total of 11 confirmed and probable and 2 possible sites has now been identified at this complex, confirming that 2 launch groups are currently under construction. These groups have been designated Launch Groups G and H. We are unable, however, to determine which sites belong

to each group. Therefore, for purposes of identification, we have designated them G1(7) through G13(17) pending further coverage.

TATISHCHEVO COMPLEX

[redacted] confirmed Launch Groups B(12-21) and C(23-27) and indicated that a fourth launch group, designated Launch Group D, is probably under construction. The pattern of sites for Launch Groups C and D is not yet clearly defined. A total of 8 confirmed and probable and 2 possible sites can be identified; their locations south, west, and north of Launch Group B(12-21) indicate not only that 2 launch groups, in addition to Launch Groups A and B, are under construction, but that 1 or 2 sites currently carried in Launch Group B(12-21) may, in fact, belong to 1 of the other launch groups. Pending further coverage, we are designating these 10 sites as Launch Sites C1(23) through C10(29) for identification purposes.

Launch Group A(1-11) is now in a late stage of construction, with most, if not all, of the silos backfilled and the loop roads and graded silo accesses well defined. Most of the silos appear to have doors, although the configurations of the doors cannot be determined. At Launch Site A1(1), an L-shaped electronics facility is newly identified, confirming this site as furnishing support, control, and probable guidance for the group (Figure 23). Construction continues at the previously identified control/bunker, located at the apex of the "L".

Launch Group B(12-21) is now confirmed, with all 10 sites in a midstage of construction. Launch Site B2(13) is enclosed by a large security fence, and a probable support/control facility is under construction (Figure 24).

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Recent coverage of the Tatishchevo complex support facility reveals that it has undergone considerable expansion. The rail-to-road transfer point (Figure 25), in particular, has been expanded extensively since December 1964. A large volume of freight traffic is evident at the railhead and a great deal of off-loaded materials is visible. The level of activity tends to indicate that this facility will continue to expand and will probably support more than the 4 launch groups currently under construction.

Associated Missile Systems

We are continuing our attempts to relate missile systems to the Type IIIC and IID single-silo sites currently under construction at deployed complexes. We believe it almost certain that some, if not all, of the Type IIIC sites will accommodate the SS-9 missile system now at or near initial operational capability. We recognize the possibility that the SS-10 may also be employed in these silos; however, the latest identified firing of this missile system occurred on 20 October 1964. This gap of almost 9 months in identified firings, after an apparently successful early flight test program (only 1 failure in 8 firings), suggests that the Soviets may have delayed or abandoned further development and deployment of the SS-10 missile system.

We believe that the Type IID silos are too small to accommodate either the SS-9 or SS-10 ICBM, and 2 other missile systems appear to be candidates for deployment at Type IID sites. The first is the 65-foot, 3-stage, solid-propellant ICBM (SAVAGE) displayed by the Soviets in the 9 May 1965 Moscow Parade (Figure 26). There is no evidence, however, that this missile system has ever been flight tested, although flight tests of individual stages or components could have occurred at Kapustin Yar. Another candidate, considering the demonstrated Soviet proclivity

for concurrency of site construction and flight testing, is the possible new ICBM launched from Tyuratam on

Preliminary analysis of this new system indicates a 2-stage vehicle, probably employing liquid propellants. Further information and analysis will be required before a more definitive judgment can be made.

OTHER ACTIVITY AT DEPLOYED COMPLEXES

Itatka Complex

revealed a probable missile exercise underway at the 3 launch sites comprising the Itatka Complex (Figure 27). A prime mover and trailer containing a possible missile is on the right pad at Launch Site A(1). Two additional possible missiles are on trailers in front of the left ready building. There appear to be 12 fuel trailers on the loop road in front of the pads. At Launch Site B(2), 2 trailers containing possible missiles are in front of the right ready building. The right pad at Launch Site C(3) contains a prime mover and a possible missile on a transporter.

Plesetsk Complex

The Plesetsk Complex has been covered by KEYHOLE photography since our latest revision, but darkness and poor image quality limited interpretation of continuing construction activity at probable Launch Sites G(9) and H(10) and the 2 areas of unidentified activity (1 suspect for a new launch facility) described in our 18th Revision.

Svobodnyy Complex

an apparent missile approximately 95 feet in length is erected on the left pad at Launch Site C(2) at Svobodnyy, a Type IIB site firmly associated with the SS-7 missile system (Figure 28). A review of

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previous photography of this launch site reveals that a similar "missile" has been erected on this pad on each coverage since June 1964. The constant appearance of a "missile" on this pad suggests that it fulfills some training function.

TYURATAM MISSILE TEST CENTER

Test Range Facilities

The Tyuratam Missile Test Center (Figure 29) was covered by [redacted]

Highlights of these coverages included the identification of a new probable rail-served soft launch pad, designated pad A4; the completion of Launch Site G8 (G9, 19); confirmation that Launch Site B3 (17) is a soft launch facility; the identification of a second probable launch pad at Launch Complex J; the observation of missiles and missile components at a number of the sites comprising Launch Complex G; and identification of new construction activity approximately 6 nm west of Launch Complex D.

[redacted] coverage of Launch Complex A revealed a new completed launch pad, designated Pad A4, approximately 400 feet east of Pad A2 (Figure 30). Construction activity has been observed in this vicinity since [redacted]

The new launch point consists of a rectangular, rail-served, concrete pad. The right rail serving Pad A2 has been extended through Pad A4, and beyond it approximately 1,000 feet. The center rail serving Pad A2 has been extended, and intersects the right rail at a point beyond Pad A4. We are currently examining this new facility, and the neighboring Pad A2, in an effort to determine its purpose and missile association. We have reached no conclusions to date.

At Pad A1 an association of space vehicle and launch point can be made as the result of

[redacted] which passed over and photographed Tyuratam at 0810Z hours on [redacted]

obtained. The only significant activity visible at the rangehead was at Launch Complex A, where a structure approximately 60 feet high was positioned 130 to 150 feet to the rear of the launch tower at Pad A1. A linear object approximately 80 feet long was positioned on the central rail spur between the launch tower and the movable structure. While further definition is not possible because of the poor quality of the photography, it appears virtually certain that this activity was related to the launch of Cosmos 68.

The Type IIC prototype launch group formed by Launch Sites A3 (15), B2 (16), and I (14) appears to be nearing completion (Figure 31). The "brick and mortar" phase at all 3 sites appears to be complete, with equipment installation and checkout underway. All 3 silo doors appear identical to those at the older Type IIA sites. At Launch Site I (14), there appear to be small, open, silo-like structures at the extremities and intersection of the segments of the L-shaped interferometer. The control bunker has been backfilled, but is not yet earth covered. Construction at the probable Type IIC prototype launch group formed by Launch Sites G7 (18) and K1 (K2, 13) is continuing (Figure 32), but at a slower pace than the group formed by Launch Sites A3 (15), B2 (16), and I (14). None of the silos appears to be up to ground level. At Launch Site G7 (18), the control bunker has been partly backfilled, and small silo-like structures are evident at the extremities and intersection of the segments of the L-shaped electronic facility.

At Launch Complex B, construction continues in the area 1,000 feet east of Launch Site B1 (2). The area (Figure 33) now consists of 4 buildings. Three of the buildings still are

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under construction, including 1 clerestory building approximately 270 feet in length. Launch Site B3(17) can now be confirmed as a soft launch facility, possibly associated with the Soviet space, rather than missile, program.

Few significant developments have taken place at Launch Complexes C(3), D(4, 9), E(6), F(5) and H(8) since our latest revision. At Launch Complex C(3), 2 missile RIM buildings are under construction approximately 1 nm west of Pad C1. Similar pairs of buildings have been constructed at the support facility west of Complex D and at the support facility southeast of Complex F. At Launch Complex F(5), the segments of the electronic facility remain un-earthed. An area of new construction activity is identified approximately 6 nm west of Launch Complex D(4, 9), and south of the complex main road (Figure 34). It consists of a roughly square, double-fenced area containing several small probable buildings, considerable track activity, and ground scarring. This activity can be negated on [redacted] and is first visible on [redacted].

Launch Complex G, covered by [redacted] on [redacted] was very active. At Launch Site G1/G2(7), a missile approximately [redacted] high is erected on Pad G2 (Figure 35). The second-stage diameter appears smaller than that of the first stage. Preliminary analysis indicates that the first-stage length [redacted] is probably similar to the first stage (about 50 feet) of a 115-foot 3-stage liquid propellant vehicle paraded in Moscow in May 1965 (Figure 36). The stepped second stage of the missile on Pad G2 does not appear the same as the second stage of the parade vehicle. Further analysis of both these vehicles is continuing. A detailed look at the 2 service gantries at Launch Site G1/G2(7) is also provided for the first time on [redacted]. Six service platforms are visible at each gantry; the upper 5 appear evenly spaced;

but there is a somewhat larger separation between the 2 lowest platforms. Also clearly visible are 4 towers, 2 at each pad, which probably support television monitors, lightning rods, and possible lighting for nighttime operations.

Probable missile components are also visible at Launch Site G3/G4(11), where the gantry is on Pad G4 (Figure 37). Darkness and shadow obscure objects within the gantry, but it appears to contain a center or "core" component approximately 80 feet high and [redacted] in diameter, with 3 cylindrical objects, each about [redacted] clustered at its base. It appears from the arrangement visible that other components will be added to the cluster. At this time no firm comparison can be made between these components and the vehicle seen near Pad G4 on [redacted].

[redacted] (Figure 38). Mensuration of that vehicle indicated a first stage about [redacted] in length, an overall length of [redacted] first- and second-stage diameters of [redacted] feet, respectively. It cannot be determined conclusively that the first stage of the vehicle observed in June 1965 is clustered. If it is related to the vehicle observed in September 1964, we must assume that it has additional components yet to be assembled. We believe that Launch Site G3/G4(11) is designed primarily for development and testing of space vehicles, but also recognize that the payload capabilities of such vehicles could have an ICBM application if the Soviets so desired.

At Launch Site G5/G6(12), the gantry is positioned on Pad G5 (Figure 39). An unidentified piece of equipment, approximately 75 feet long overall, and 4 smaller vehicles are also parked on the pad. In addition, a cylindrical object approximately 60 feet high is erected on Pad G6. A possible transporter, approximately 95 feet long overall, is parked approximately 500 feet southeast of Pad G6. Significantly, identical

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equipment is apparent at Launch Site G8/G9(19) (Figure 40). A transporter approximately 95 feet long overall, carrying a cylinder approximately 60 feet long, is positioned on the apron at Pad G9. A piece of equipment approximately 75 feet long is nearby.

The object erected on Pad G6 is about 7 or [] in diameter, and appears to be a canister or container rather than a missile or missile component. This cylinder could be the container for an ICBM requiring environmental control because of the nature of its propellants. That would explain, at least partly, the relatively large and bulky gantry at Launch Site G5/G6(12) associated with an apparently small missile. Details of the lower portion of the erected cylinder are not sufficient to indicate whether or not a missile is launched from the container. The fact that the gantry has been removed suggests that the cylinder is in place during launch. If this is true, the cylinder could represent a silo liner of some type being used aboveground in a soft R&D development program.

All these factors lend credence to the theory that Launch Site G5/G6(12) may be the soft R&D launch facility for a new small ICBM, with Launch Site G8/G9(19) the hardened counterpart. Whether there will be field deployment of the Launch Site G8/G9(19) configuration, or whether the deployed Type III sites actually represent only minor variations of Launch Site G8/G9(19), is not yet clear. The appearance of the 3-stage solid ICBM in Moscow, the recently initiated test program for an apparent 2-stage liquid ICBM, and the fact that small-dimension silos exist in 2 configurations at Tyuratam, suggest that 2 competitive ICBM programs -- one liquid, one solid -- may be underway.

Photography of the launch sites at Launch Complex G on []

revealed that the missiles/components observed on [] were no longer

[] launch shortly after the [] coverage on []. Neither of these can be associated with Launch Complex G. The 15 June coverage of Launch Site G8/G9(19) also showed that it is complete and probably operational. This is the first third-generation launch silo to be completed.

[] provided excellent coverage of Launch Complex J at Tyuratam. Highlight of the [] coverage was the identification of a second large excavation approximately 1,700 feet west-northwest of the first (Figure 41). We believe that the excavations are launch pads and/or static test stands under construction, and have designated the eastern one Pad J1 and the western one Pad J2. The exterior of the massive assembly/checkout building appears to be complete on Mission []. Two parallel scars approximately 60 feet apart (possible gantry tracks under construction) extend northward about 3,000 feet from the assembly/checkout building toward the excavations. The general layout of this area of construction activity is similar to the early stages of construction observed at Launch Site G3/G4(11). Photographic coverage of Launch Complex J on [] showed that construction is continuing at a steady pace.

Launch Site K3(20), probably the hardened R&D facility for the missile system to be employed in Type III launch silos, was covered by []. The control bunker has been re-backfilled and the L-shaped electronic facility appears complete (Figure 42). There is unidentified activity, equipment, and a

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ring-like object in the immediate vicinity of the silo, but obliquity precludes determination of its construction status.

Expedited construction activity has brought Launch Group L(21-30), begun in November 1964, to a late stage of construction by mid-June 1965.

Nine of the sites have been completely backfilled, and portions of the level silo accesses on either side of the silos have been paved (Figure 43). At 8 of the sites, the accesses are oriented north-south; at the other 2 launch sites (L2&L3) the orientation is [redacted] and 280 degrees, respectively. Also of interest is the fact that the L-shaped interferometer under construction at Launch Site L1 is oriented toward the United States, rather than downrange toward Kamchatka and the Pacific Ocean as are all other such electronic facilities at Tyuratam. This appears to connote an operational as well as a training function for this launch group, which we now believe to be the prototype for Type IIID launch groups in the field.

No significant changes have been observed since our latest revision at the main support base; the propellant production plant, the nuclear storage facility, or the probable interferometer under construction southwest of the propellant plant. We have again examined the area of unidentified construction activity west of Launch Complex G and south of the nuclear warhead handling facility, where an H-shaped building is under construction (see 18th Revision). The purpose of this area is still undetermined. The H-shaped building in the center of the area is smaller than similarly shaped buildings common to Soviet solid-propellant static test facilities. Because of the proximity of this area to the revetted storage area, however, it is suspect for a purpose associated with a solid-propellant system.

Test Range Activity

Flight test activity, heavy throughout April and May, tapered off somewhat during the first half of June 1965. It is interesting to note that 5 of the 8 ICBM launches attempted during the period [redacted] resulted in failures. This unusual rash of failures probably indicates increased test activity emphasizing new and/or modified systems.

Highlight of the firings was the continued testing of a possible new ICBM first launched from Launch Complex G, probably from Launch Site G5/G6, on [redacted]. A launch of this vehicle on [redacted] resulted in early inflight failure. On [redacted] it was apparently successfully fired to the Kamchatka Impact Area. Preliminary analysis of this possible new ICBM indicates that it is a 2-stage vehicle utilizing liquid propellants. Also significant from a negative viewpoint is the complete lack of evidence that a flight test program is underway for either of the two 3-stage vehicles paraded in Moscow on 9 May 1965.

No SS-6 or SS-10 launch operations were identified in the period [redacted] inclusive. No SS-10 firing has been identified since [redacted] when it was apparently successfully launched to the Pacific Impact Area. While gaps in Soviet R&D flight test programs are not unusual, the length of time involved in the case of the SS-10 (about 9 months) leads us to suspect that the program is delayed or abandoned.

The 4 SS-7 firings to Kamchatka identified during the period [redacted] apparently involved limited R&D testing and troop training. [redacted]

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FIGURE 3. LAUNCH SITE A(1), ALEYSK ICBM COMPLEX.

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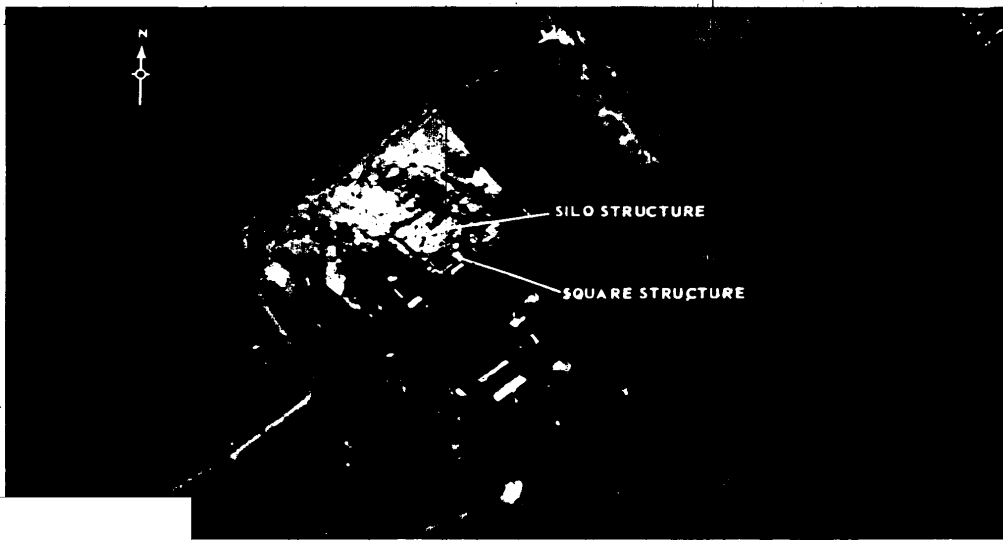


FIGURE 4. LAUNCH SITE B(2), ALEYSK ICBM COMPLEX.

NPIC H-3394 (9/69)

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FIGURE 5. LAUNCH SITE C3, ALEYSK ICBM COMPLEX.

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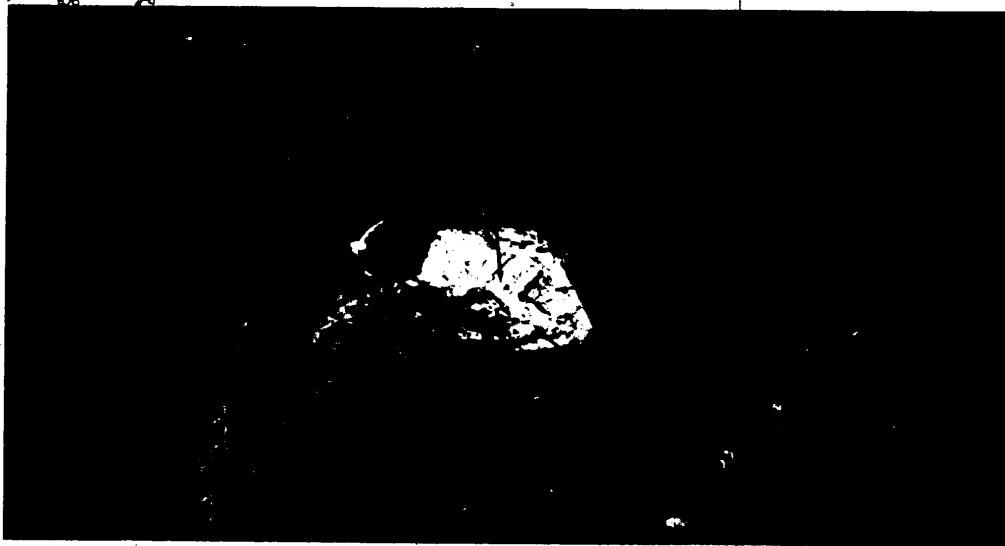


FIGURE 6. LAUNCH SITE E5, ALEYSK ICBM COMPLEX.

NPIC 3376 B 681

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FIGURE 7. LAUNCH SITE F-7, DOGBAROVSKIY ICBM COMPLEX.

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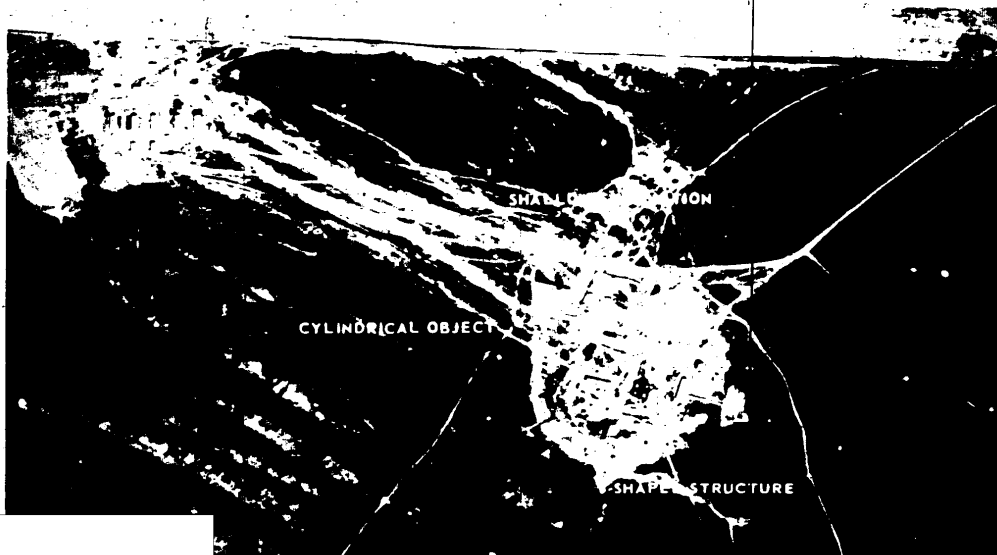


FIGURE 9. LAUNCH SITE A(1), IMENI GASTELLO ICBM COMPLEX.

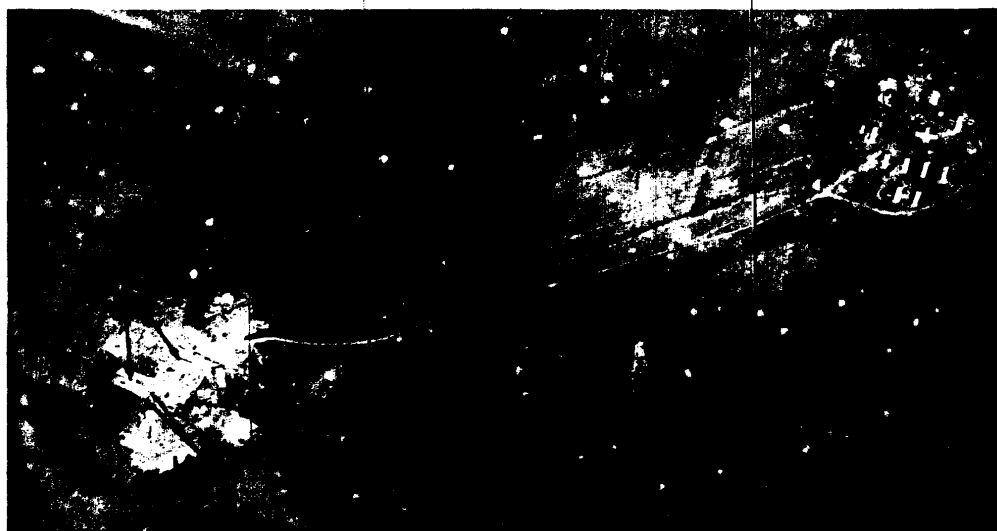


FIGURE 10. LAUNCH SITE B(2), IMENI GASTELLO ICBM COMPLEX.

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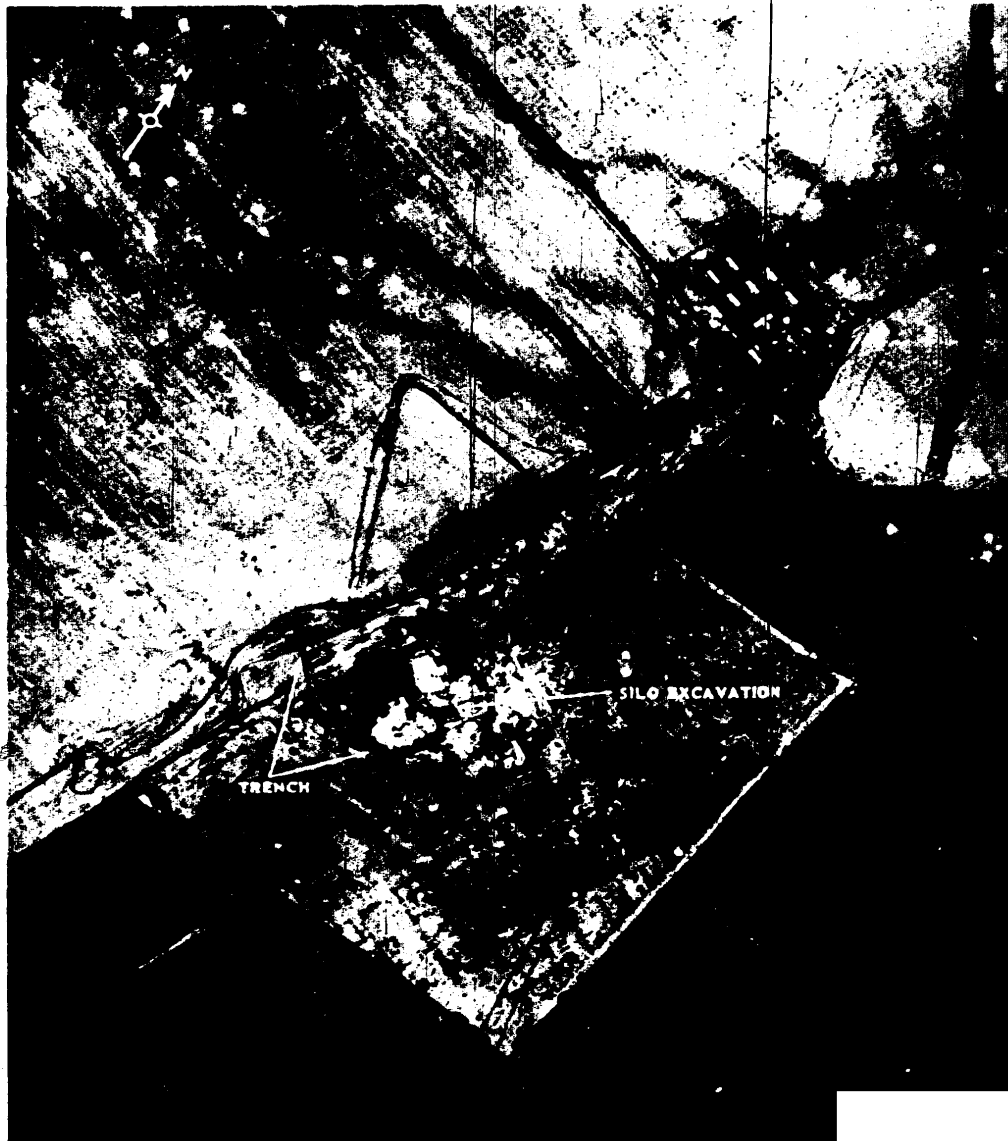


FIGURE 11: LAUNCH SITE C3, IMENI GASTELLO ICBM COMPLEX.

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FIGURE 12. LAUNCH SITE D41, IMENI GASTELLO ICBM COMPLEX.

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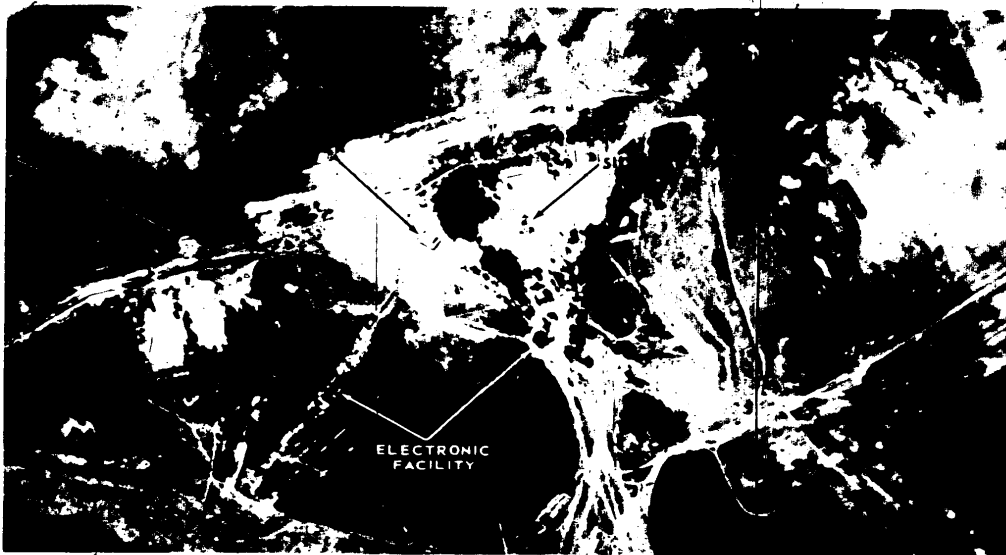


FIGURE 14. LAUNCH SITE A(1), KARTALY ICBM COMPLEX.

NPIC H-3384 18 601

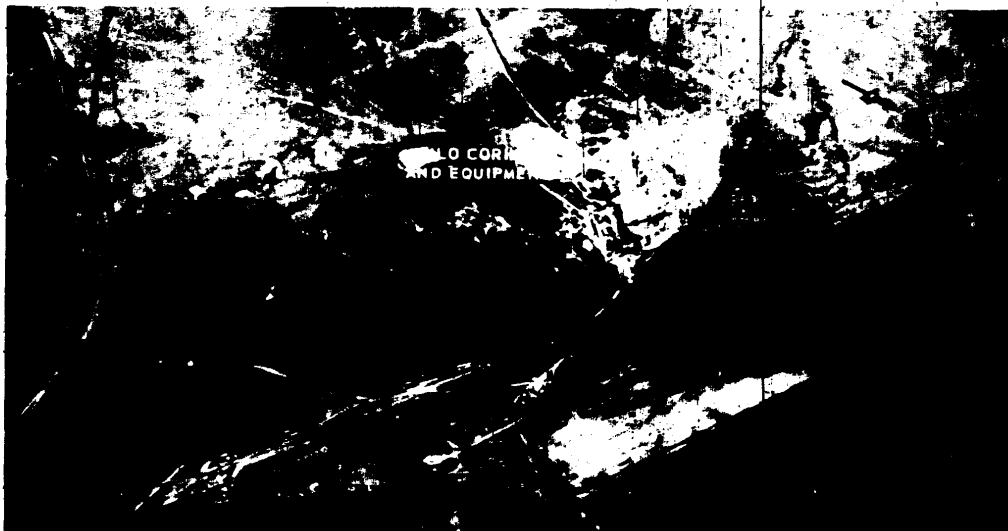


FIGURE 15. LAUNCH SITE H(8), KARTALY ICBM COMPLEX.

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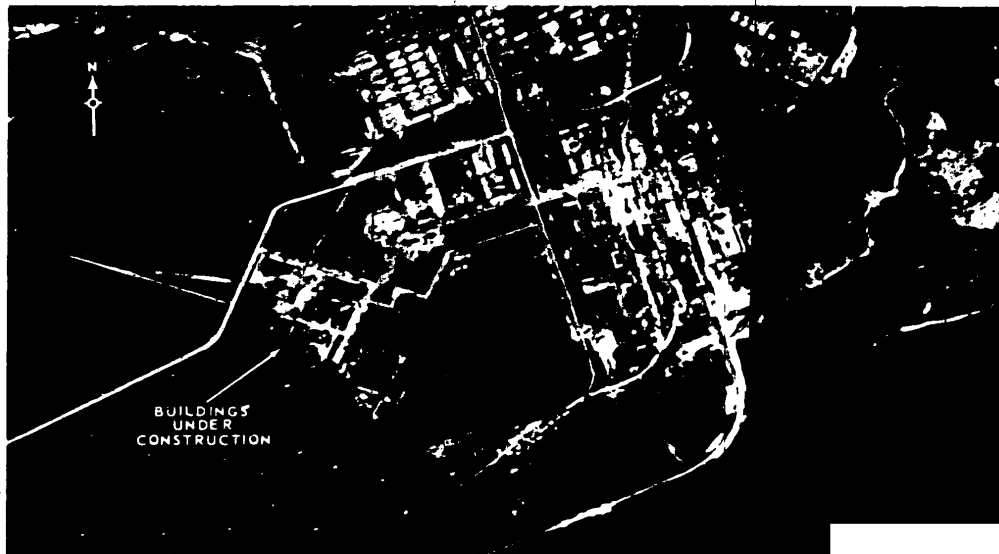


FIGURE 17. COMPLEX SUPPORT FACILITY, UZHUR ICBM COMPLEX.

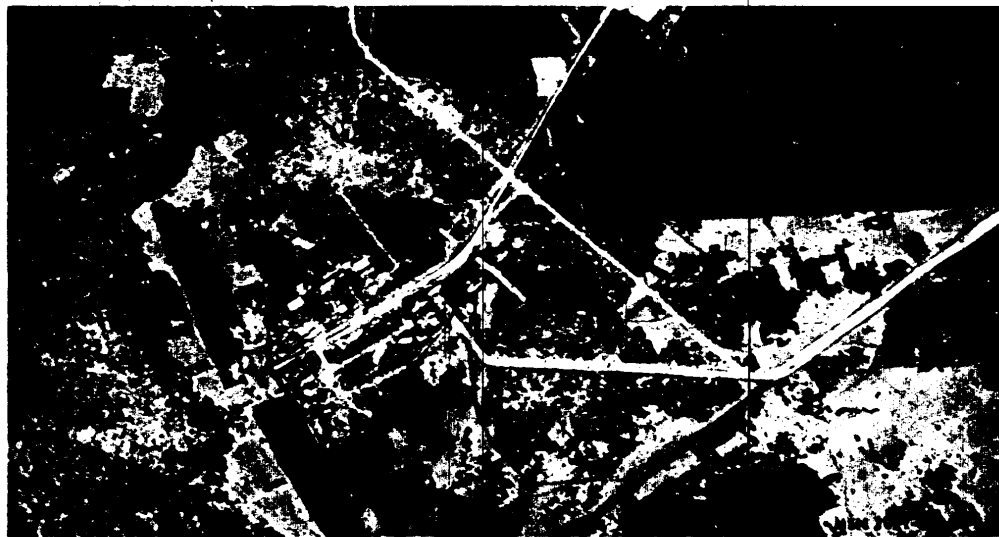


FIGURE 18. RAIL-TO-ROAD TRANSFER POINT, UZHUR ICBM COMPLEX.

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FIGURE 20. LAUNCH SITE-A(1), ZHANGIZ-TOBE ICBM COMPLEX.

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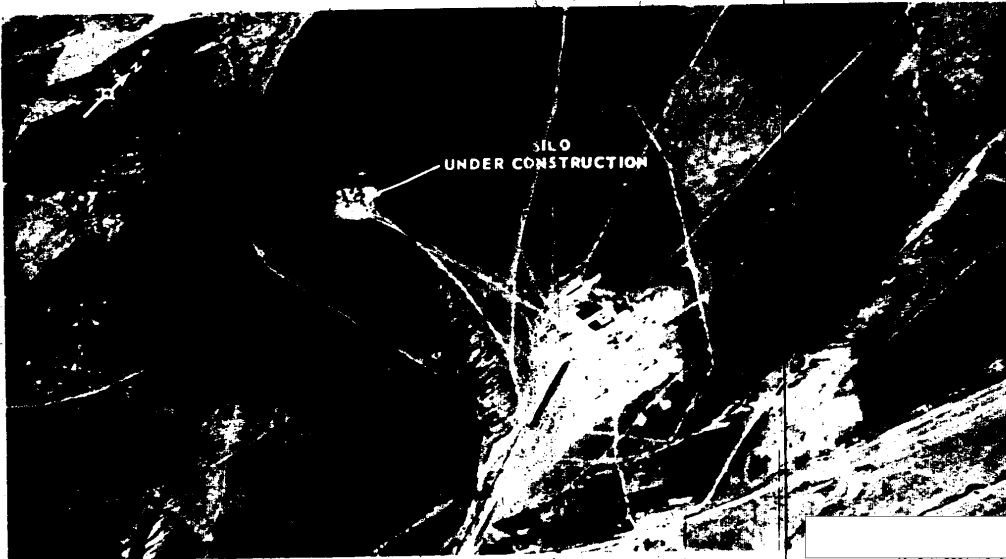


FIGURE 21. LAUNCH SITE F1(24), OLOVYANNAYA ICBM COMPLEX.

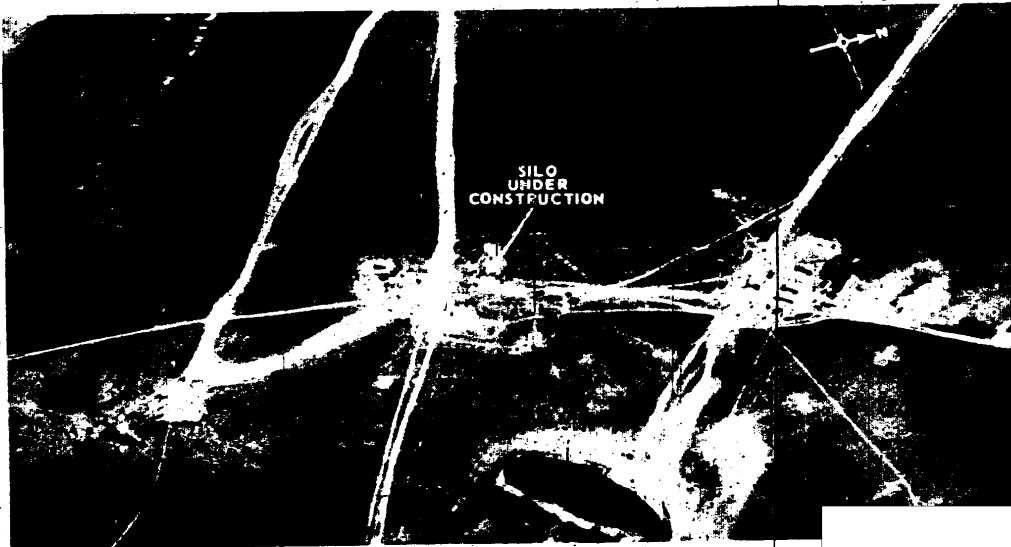


FIGURE 22. LAUNCH SITE G1(25), OLOVYANNAYA ICBM COMPLEX.

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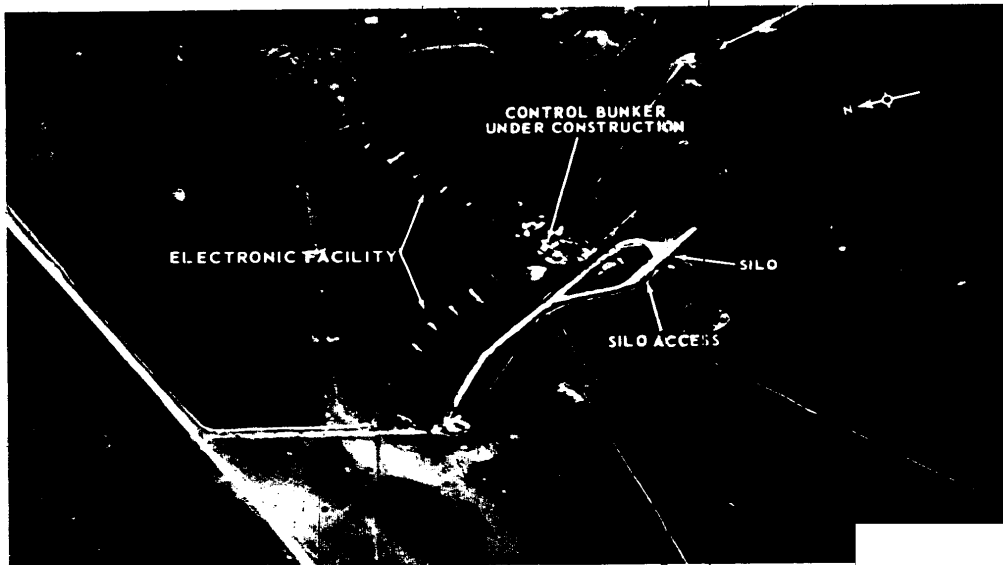


FIGURE 23. LAUNCH SITE A1(1), TATISHCHEVO ICBM COMPLEX.

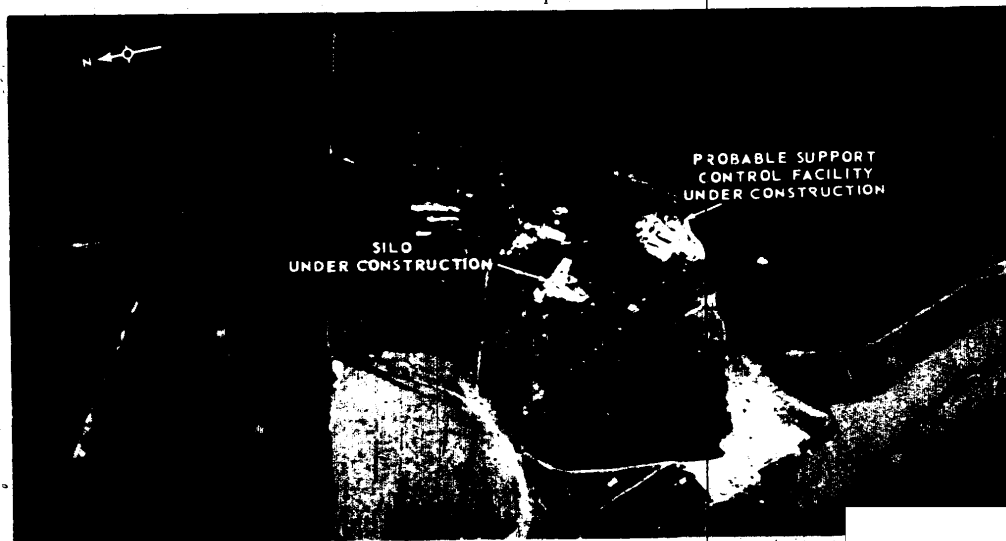


FIGURE 24. LAUNCH SITE B2(13), TATISHCHEVO ICBM COMPLEX.

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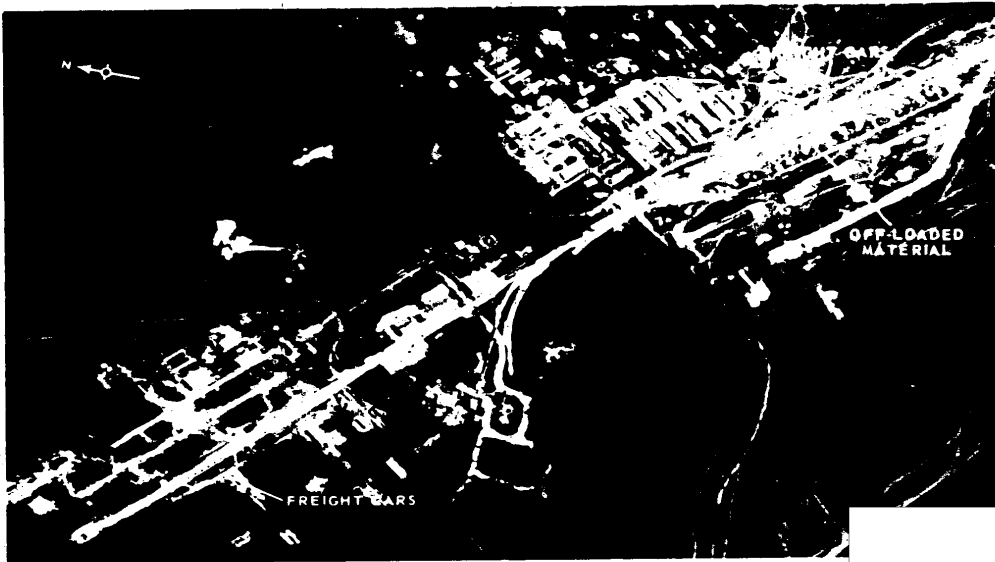


FIGURE 25. RAIL-TO-ROAD TRANSFER POINT, TATISHCHEVO ICBM COMPLEX.

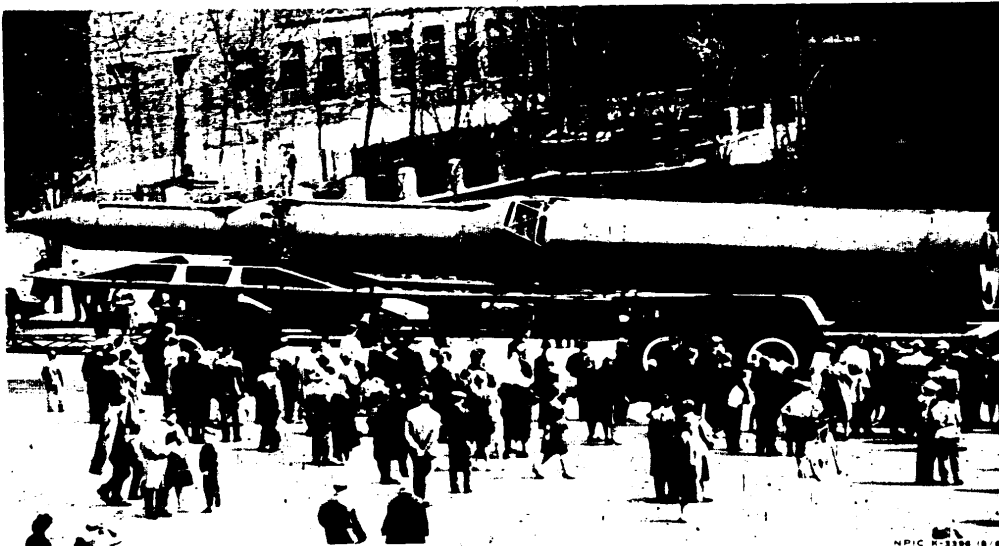


FIGURE 26. SAVAGE ICBM, MOSCOW PARADE, MAY 1965.

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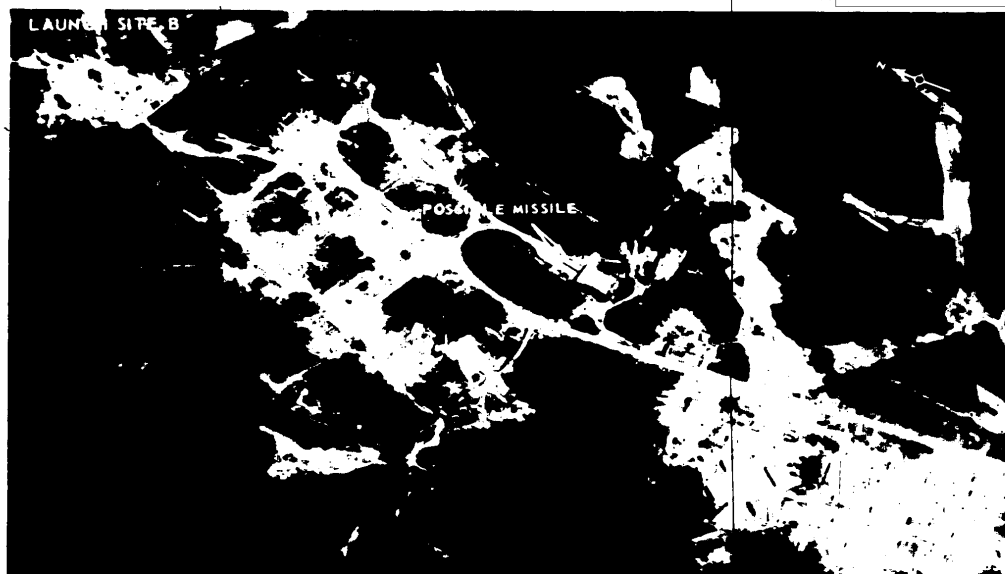
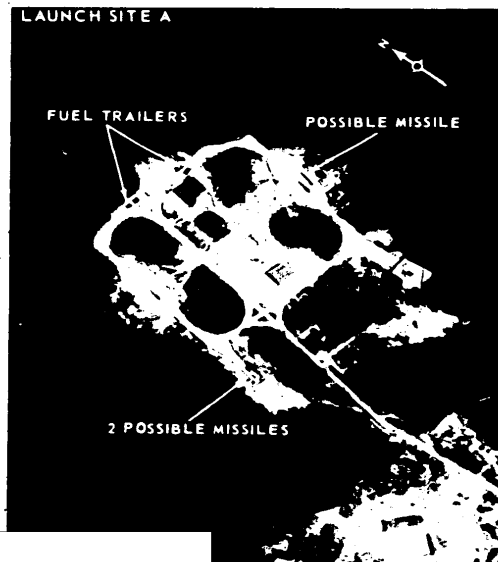


FIGURE 27. LAUNCH SITES A(1), B(2), AND C(3), ITATKA ICBM COMPLEX.

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FIGURE 28. LAUNCH SITE C-2, SVOBODNYI ICBM COMPLEX

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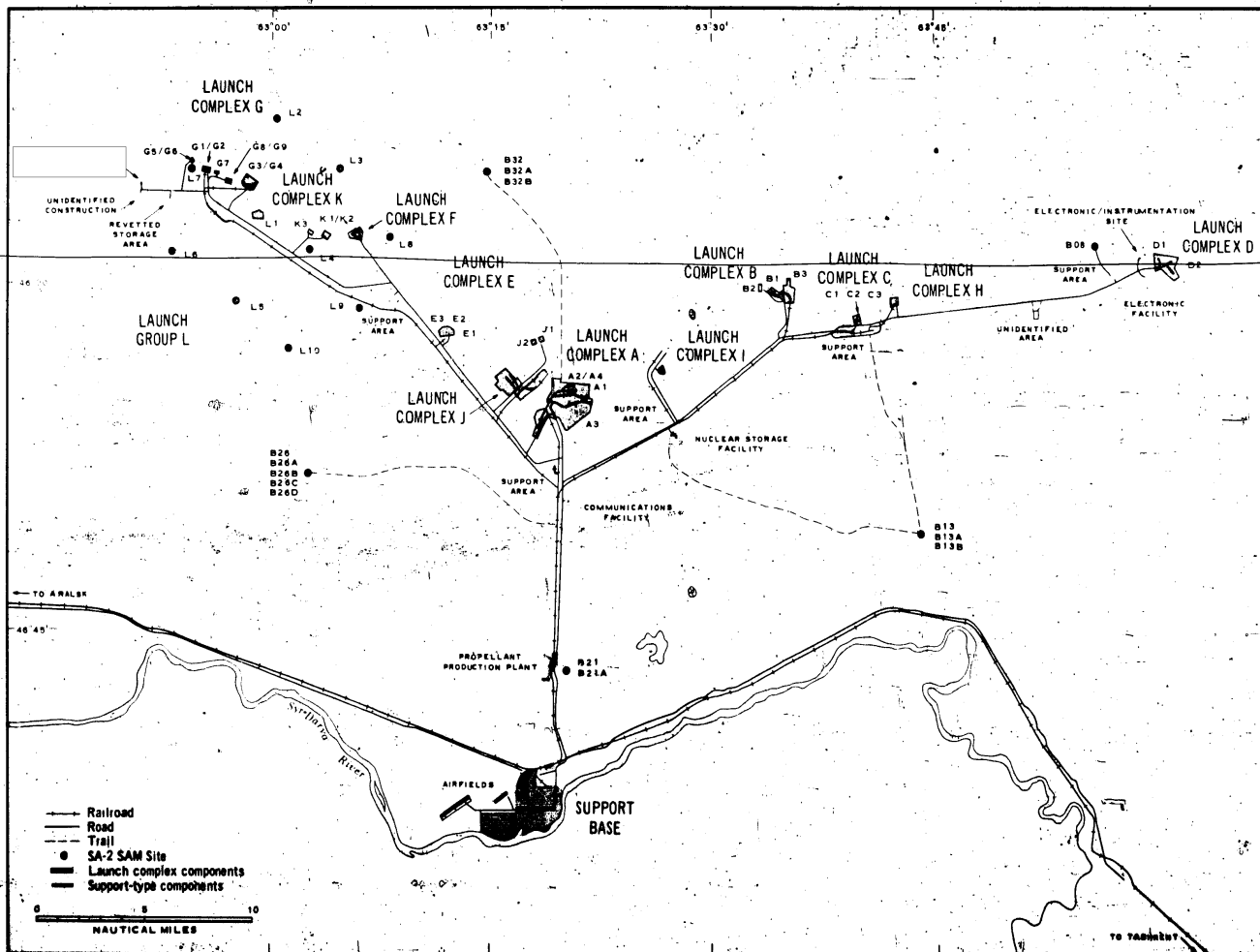


FIGURE 29. SCHEMATIC LAYOUT, TYURATAM MISSILE TEST CENTER.

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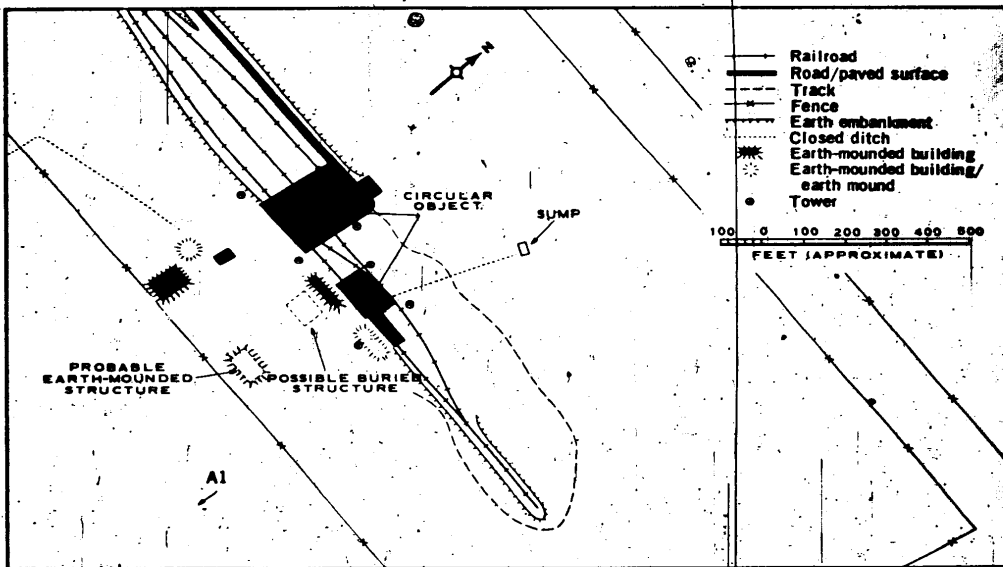


FIGURE 30. LAUNCH SITES A2 AND A4, TYURATAM.

NPIC K-2400 (8/68)

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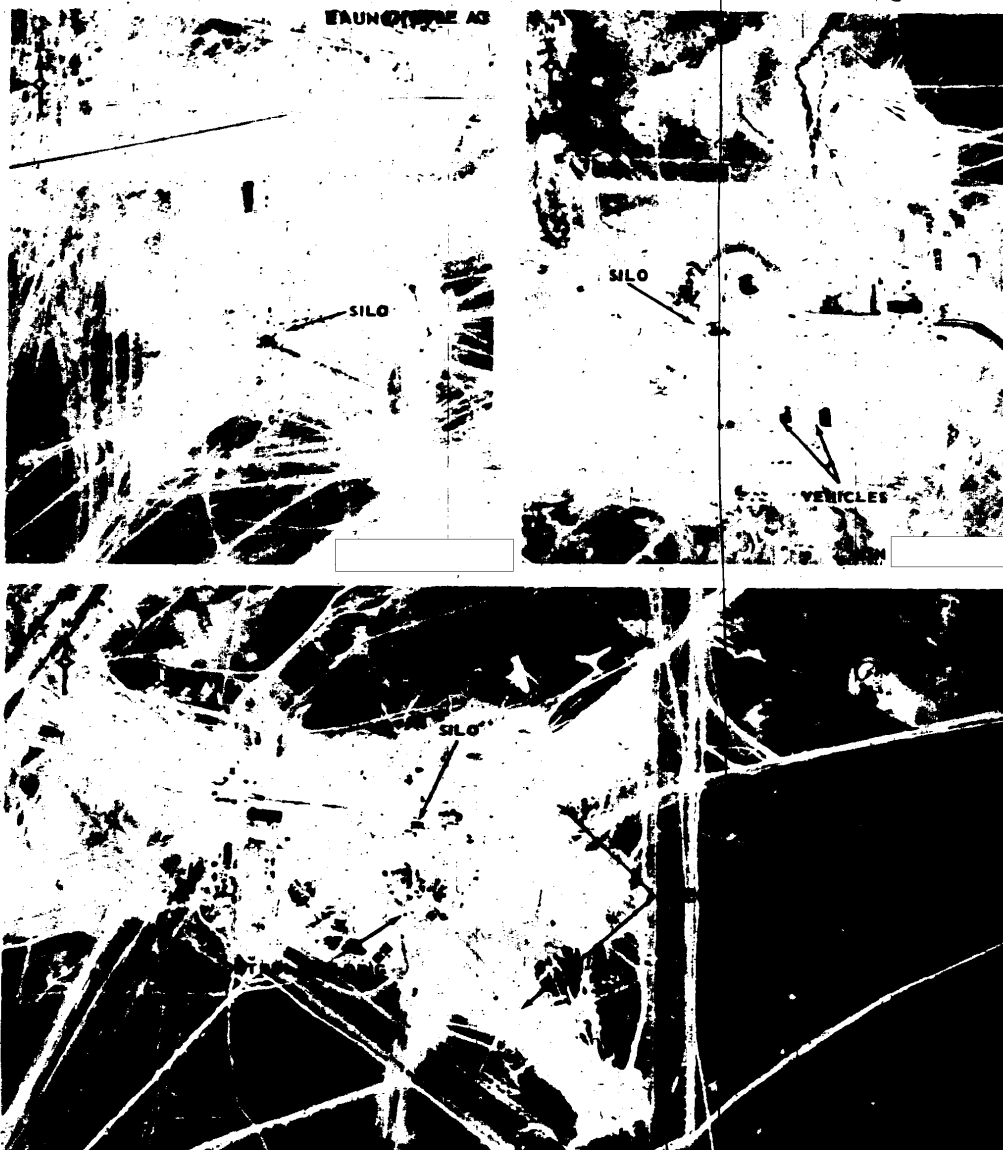


FIGURE 31. LAUNCH SITES A3(15), B2(16), AND J1(14), TYURATAM.

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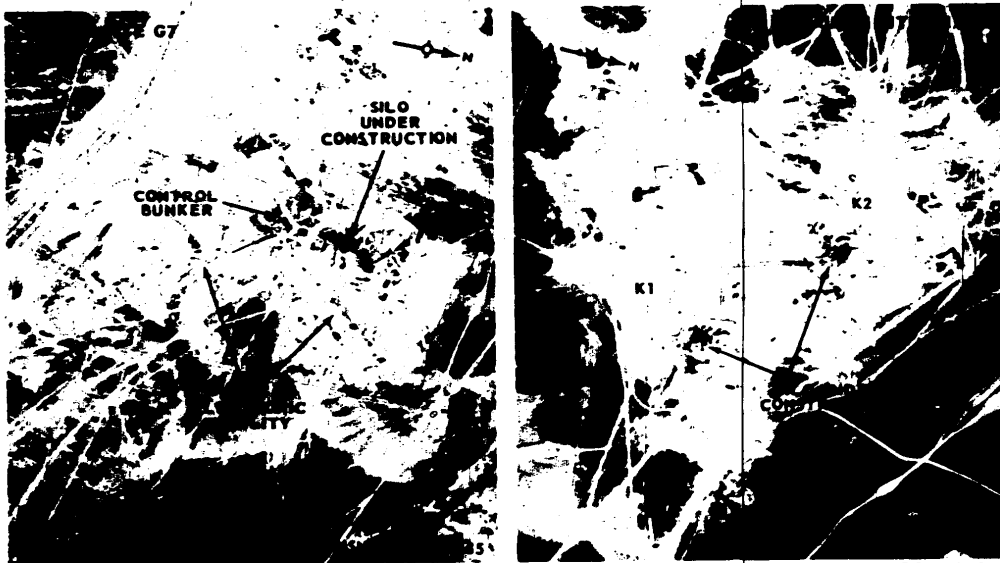


FIGURE 32. LAUNCH SITES G7(18) AND K1 K2(13), TYURATAM.

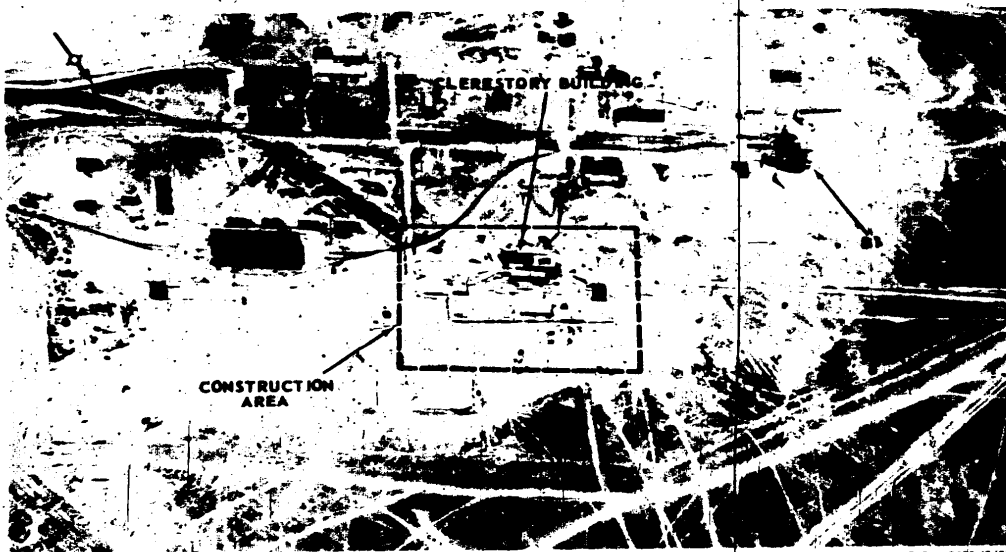


FIGURE 33. CONSTRUCTION ACTIVITY EAST OF LAUNCH SITE B1(2), TYURATAM.

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25X1

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FIGURE 34. CONSTRUCTION ACTIVITY WEST OF LAUNCH COMPLEX D-4, 9, TYURATAM.

NPIC N-3404 (S-66)

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25A1

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FIGURE 35. LAUNCH SITE G1 G2(7), TYURATAM.

NPIC K-3408 (8/68)

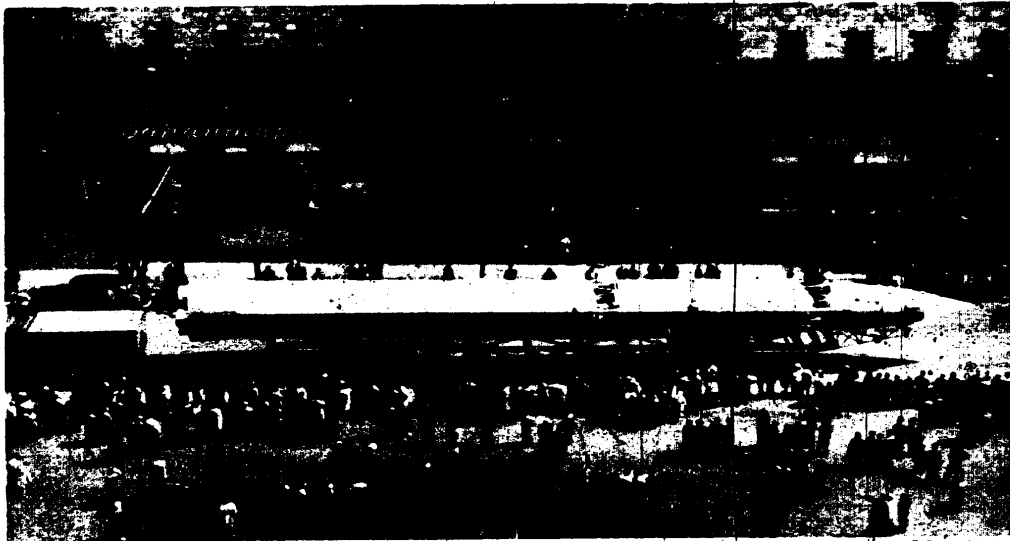


FIGURE 36. PARADE MISSILE (3-STAGE, LIQUID), MOSCOW, MAY 1965.

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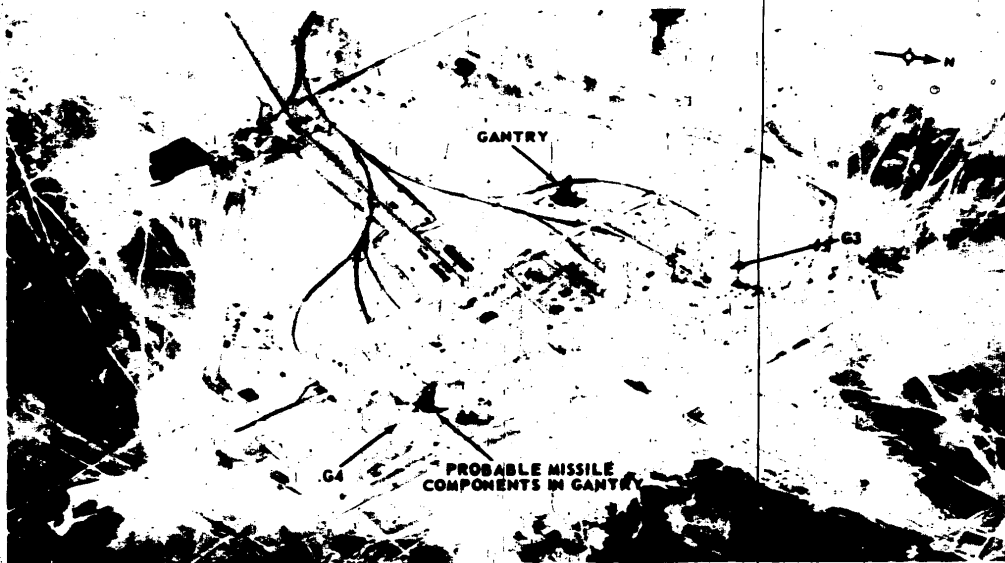


FIGURE 37. LAUNCH SITE G3 G4(11), TYURATAM.

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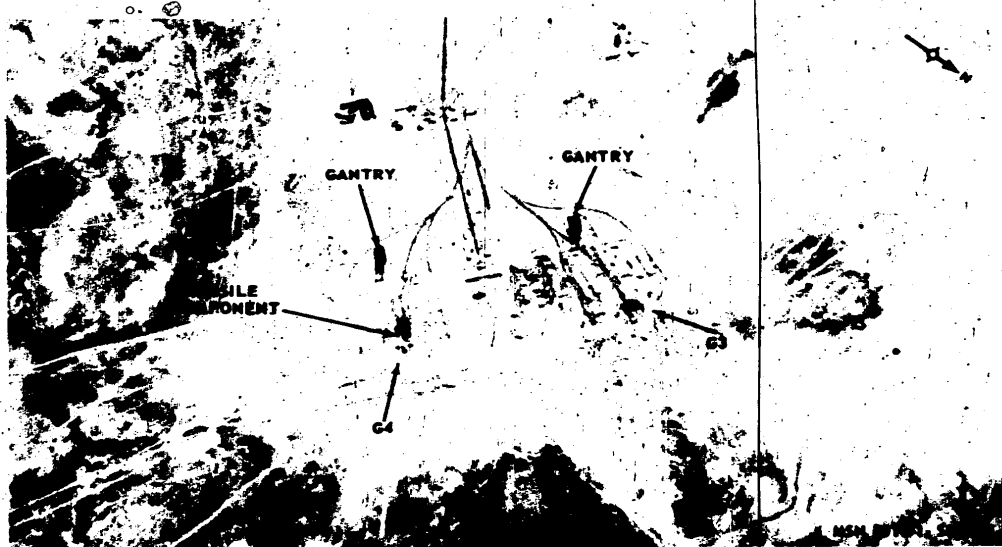


FIGURE 38. LAUNCH SITE G3 G4(11), TYURATAM.

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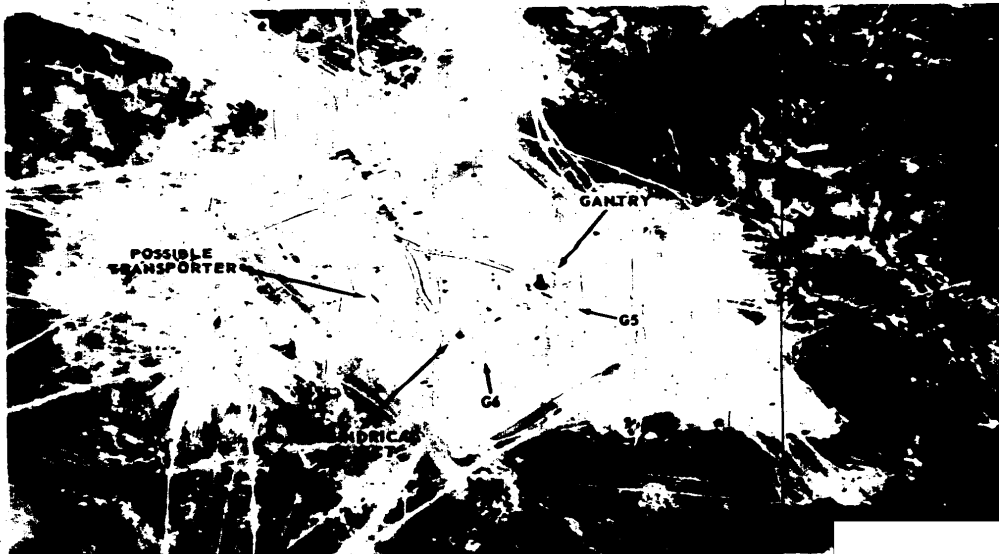


FIGURE 39. LAUNCH SITE G5 G6(12), TYURATAM.

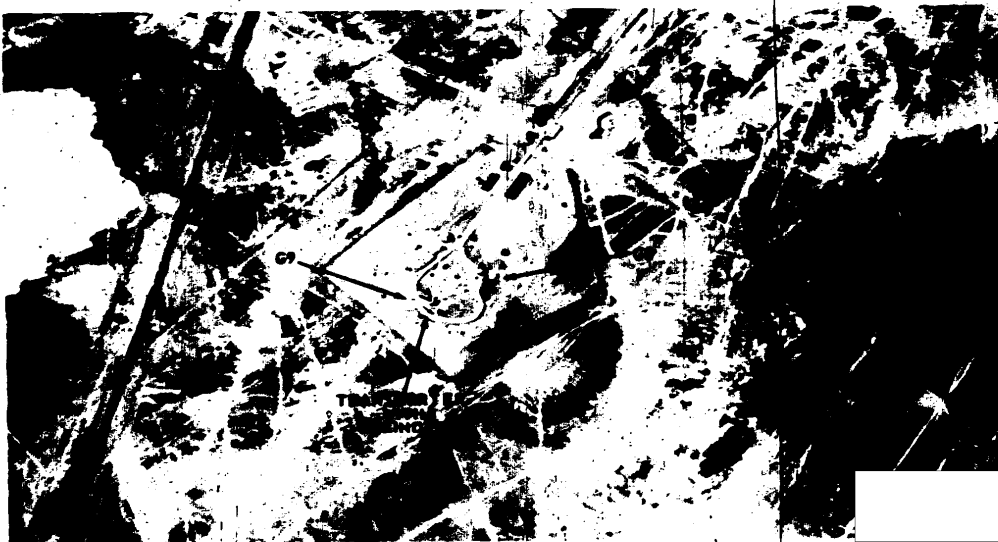


FIGURE 40. LAUNCH SITE G8 G9(19), TYURATAM.

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TOP SECRET CHESS RUFF

TOP SECRET CHESS RUFF

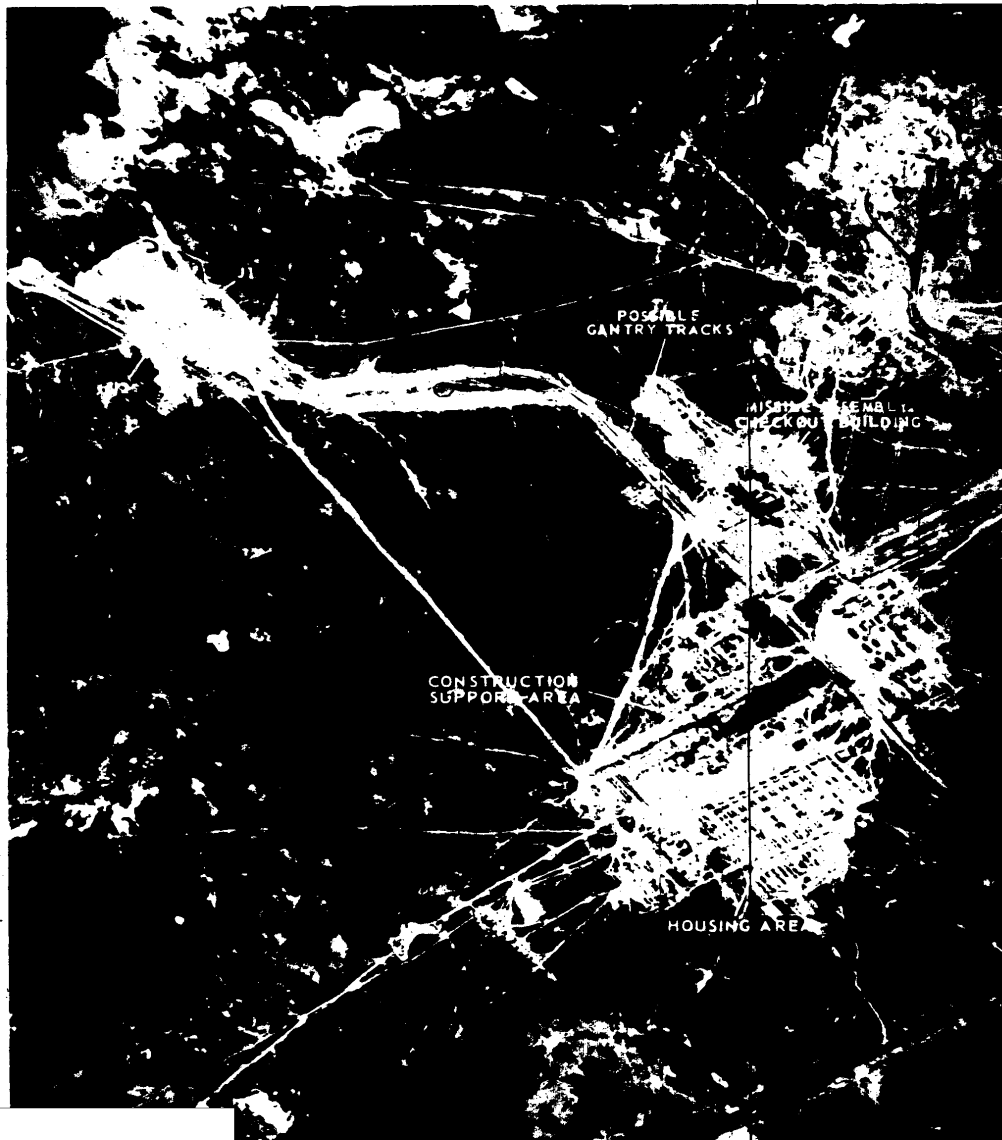


FIGURE 41. LAUNCH COMPLEX J, TYURATAM.

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TOP SECRET CHESS RUFF

25X1
ZVA

25X1

25X1

TOP SECRET CHESS RUFF



FIGURE 42. LAUNCH SITE K3(20), TYURATAN.

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TOP SECRET CHESS RUFF

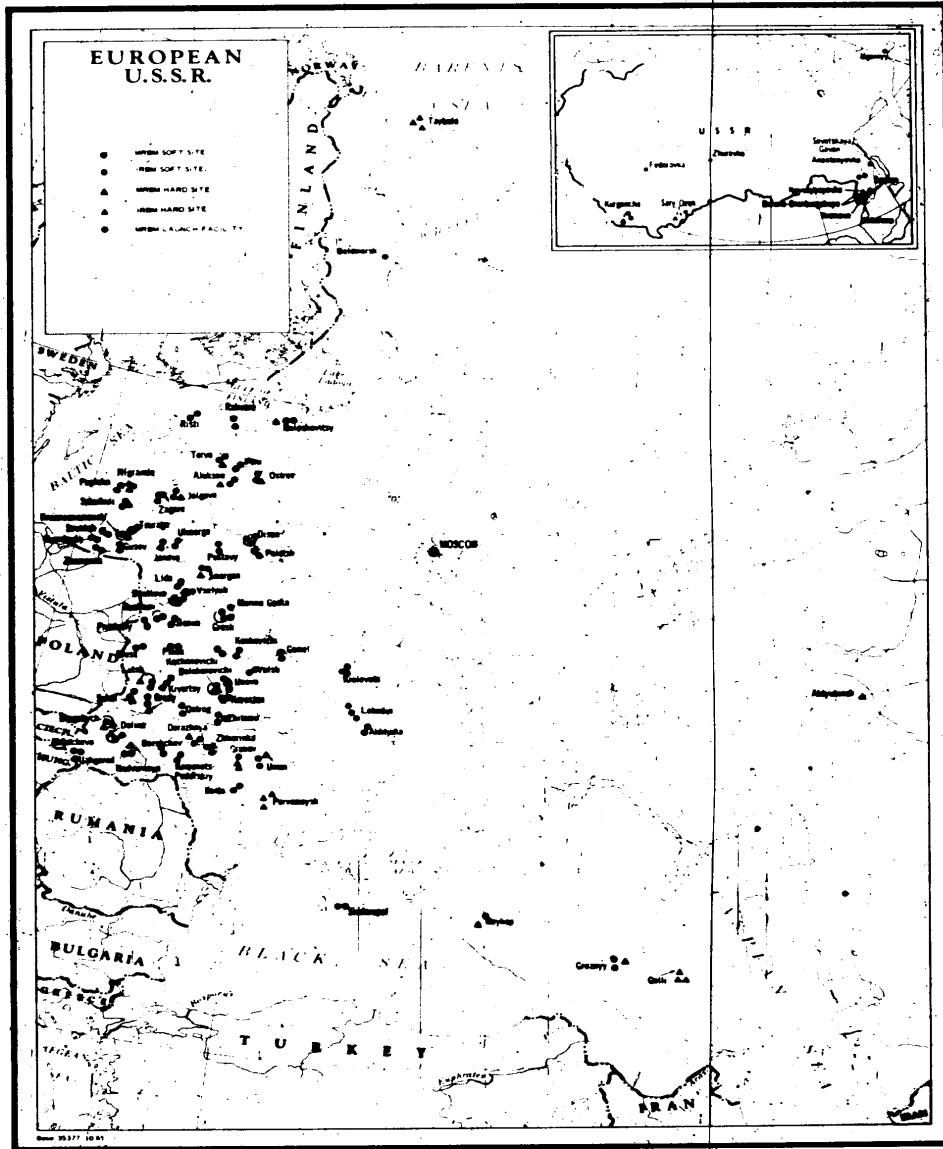
25X1
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TOP SECRET CHESS RUFF



TOP SECRET CHESS RUFF

TOP SECRET CHESS RUFF

SOVIET IRBM/MRBM DEPLOYMENT

KEYHOLE photography since our 18th Revision covers 9 of the 14 IRBM, and 38 of the 67 MRBM complexes. With the discovery of 5 additional fixed field sites, we now carry a total of 80 of this type facility. Changes are reflected in Tables 4, 5, and 7. Locations of deployed IRBM/MRBM complexes are shown in Figure 44. Information on surface-to-surface launch sites at the Kapustin Yar Missile Test Center is given in Table 6. Typical configurations of the launch sites, and the weapons system associated with each, are depicted in Figure 45. An evaluation of IRBM/MRBM sites without support facilities is given in Table 8. The composition of IRBM/MRBM complexes is given in Table 9.

IRBM DEPLOYMENT**Current Force Level**

The IRBM element of the Soviet Strategic Rocket Forces remains at 33 sites containing a total of 112 launchers, including 54 in a hard configuration. Of these launchers, 109, including 51 in a hard configuration, are estimated to be operational. Additional coverage was not obtained of Taybola 3 since our latest revision, and we are continuing to carry it as the only IRBM site in the current inventory which has not reached an operational status. We suspect it may have been abandoned.

Sites Containing 2 Pads

In our 18th Revision we reported that 40 percent of available photography had been reviewed to determine if any other "half sites", such as the Bereza IRBM site, exist. This review has now been 90 percent completed with negative results.

Taybola Complex

The Taybola 1 and 2 launch sites were covered by [redacted]. At Taybola 1, no missiles, equipment, or new construction were observed in the visible portions of the launch site. At Taybola 2 (Figure 46), expansion and improvement of the launch site is continuing. A new, fenced, unidentified area containing 2 probable aprons, each with as associated building is adjacent to the south edge of the double fence enclosing the launch site. A road connects the launch site and the new area. This new construction can be negated on [redacted]. The speed with which this construction was accomplished, and the presence of the security fencing may have some significance. To date, there has been no evidence of the addition of similar facilities at any other deployed Type IV IRBM launch site. The Taybola 2 site support facility has been expanded and now contains 6 barracks-type buildings, a vehicle maintenance and storage section, and approximately 16 other buildings of various sizes.

MRBM DEPLOYMENT**Current Force Level**

The Soviet MRBM force currently consists of 156 sites containing 624 launchers, including 84 in a hard configuration. All are operational. These figures are the same as those carried in our 18th Revision.

Fixed Field Sites

Five additional fixed field sites have been identified on KEYHOLE photography since our 18th Revision, bringing the total identified to date to 80. A list of these sites is given in Table 7.

The Sofiye Alekseyevskoye site (Figure 47),

TOP SECRET CHESS RUFF